



UNITED STATES PATENT AND TRADEMARK OFFICE

mk

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/765,126

01/28/2004

Chang-Rae Jeong

P56924

2250

7590

11/03/2006

Robert E. Bushnell
1522 K Steet, N.W.
Suite 300
Washington, DC 20005

EXAMINER

PHU, SANH D

ART UNIT

PAPER NUMBER

2618

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/765,126

Applicant(s)

JEONG ET AL.

Examiner

Sanh D. Phu

Art Unit

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13 and 17-20 is/are allowed.
- 6) ☒ Claim(s) 14-16 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections – 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation “The method as set forth in claim 14”.

This limitation is lack of antecedent basis. It appears that the limitation should be changed to -- The method as set forth in claim 20--.

3. Therefore, during the current prosecution of the instant application, the limitation is assumed as -- The method as set forth in claim 20--.

Claim Rejections – 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole

Art Unit: 2618

would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al (6,032,020) in view of Weissman et al (6,501,942).

–Regarding to claim 14, see figure 2, col. 2, line 62 to col. 3, line 3, col. 3, line 50 to col. 6, line 50, Cook et al apparatus for transmitting sector signal in multi-sector in-building repeater, the apparatus (see figure 2) comprising:

a master transmitting unit (included in (136, 236, 336)) or receiving multi-sector signals (128, 228, 328) of a carrier frequency from a base station (“cellular base station” (see col. 3, line 3), frequency-converting the multi-sector signals, and outputting frequency-converted multi-sector signals to a same transmission line (48) (see col. 3, line 50 to col. 6, line 50);

a plurality of slave transmitting units (included in (138, 238, 338)) for extracting the converted sector signals assigned to the multi-sector signals from the master transmitting unit, converting extracted sector signals into high frequency signals, and transmitting converted high frequency signals through an antenna device (142, 242, 342) (see col. 3, line 50 to col. 6, line 50).

Cook et al does not teach procedure of mixing the multi-sector signals with different transmission intermediate frequency signals, as claimed.

Weissman et al teaches frequency converting a received signal (outputted from (30) to a desired frequency by mixing (via a mixer (comprising (32)) the received signal with a corresponding local frequency signal (outputted from (42)) (see figure 2, col. 9, line 66 to col. 10, line 16) .

Since Cook et al does not teach in detail how the multi-sector signals (128, 228, 328) are frequency converted, it would have been obvious for a person skilled in the art to implement Cook et al in such a way that the frequency-converted multi-sector signals are generated by mixing each of the multi-sector signals (128, 228, 328) (via a mixing unit) with a respective one of local different frequency signals, (considered here equivalent with the limitation "different transmission intermediate frequency signals"), as taught by Weissman et al, so that the frequency-converted multi-sector signals would be generated as required.

-Regarding to claim 15, as applied to claim 14, Cook et al in view Weissman et al teaches that each of the mixer is configurable to comprise a

Art Unit: 2618

mixing unit (see Weissman et al, (32) of figure 2) and an amplifying unit (see Weissman et al, (34, 36) of figure 2), (see also Weissman et al, col. 9, line 66 to col. 10, line16).

Or in another word, in Cook et al invention in view of Weissman et al, the master transmitting unit is configurable to comprise a plurality of mixing units for receiving assigned carrier frequency sector signals from the base station, mixing received sector signals with different transmission intermediate frequency signals, and outputting mixed sector signals; and a plurality of amplifying units for filtering off unnecessary signals output signals of the mixing units, the sector signals having been converted into different transmission intermediate frequency signals, for amplifying the sector signals without the unnecessary signals to a predetermined level, and for outputting amplified signals to the same transmission line.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cook et al in view of Weissman et al, and further in view of Souetinov (6,147,568).

Art Unit: 2618

–Regarding to claim 16, Cook et al in view of Weissman et al does not teach that each of the mixing units comprises: an attenuator for receiving high frequency sector signals of an assigned carrier frequency from the base station, attenuating received high frequency sector signals, and outputting attenuated high frequency sector signals; and a mixer for mixing the attenuated carrier frequency sector signals at the attenuator with signals having subtracted different transmission intermediate frequency band signals from the carrier frequency, and outputting converted sector signals into the different transmission intermediate frequency band signals to each of the amplifying units.

However, Cook et al in view of Weissman et al teaches that each of the mixing unit is configurable to comprises a variable amplifier (see Weissman et al, (30) of figure 2) for receiving high frequency sector signals of an assigned carrier frequency from the base station; and a mixer (see Weissman et al, (32) of figure 2) for mixing the output from the variable amplifier with signals having subtracted different transmission intermediate frequency band signals from the carrier frequency, and outputting converted sector signals into the

Art Unit: 2618

different transmission intermediate frequency band signals to each of the amplifying units (see Weissman et al, (34, 36) of figure 2).

Souetinov teaches a variable amplifier can be implemented as a variable attenuator (4) (see figure 2, abstract, col. 2, line 20 to col. 4, line 5).

Since Cook et al does not teach in detail how each of the variable amplifier is implemented, it would have been obvious for a person skilled in the art to implement Cook et al invention in view of Weissman et al in such a way that each of the variable amplifiers would be implemented as a variable attenuator, as taught by Souetinov, so that the variable amplifiers would be obtained as required.

With such the implementation, Cook et al in view of Weissman et al and Souetinov teaches that each of the mixing units is configurable to comprise an attenuator for receiving high frequency sector signals of an assigned carrier frequency from the base station, attenuating received high frequency sector signals, and outputting attenuated high frequency sector signals; and a mixer for mixing the attenuated carrier frequency sector signals at the attenuator with signals having subtracted different transmission intermediate frequency band

signals from the carrier frequency, and outputting converted sector signals into the different transmission intermediate frequency band signals to each of the amplifying units, as claimed.

Allowable Subject Matter

7. Claims 1-13 and 17-20 are allowed.
8. Claim 21 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sanh D. Phu whose telephone number is (571)272-7857. The examiner can normally be reached on M-Th from 7:00-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571) 272-

4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Sanh D. Phu
Examiner
Division 2618

SP

10/24/06
SANH D. PHU
PATENT EXAMINER